

AMENDMENTS TO CLAIMS

1. (currently amended) A flare pellet assembly for providing at least one of visual and infrared energy output, said flare pellet assembly comprising:
 - at least first and second ignitable flare pellets arranged in a stack;
 - a rod that extends through said first and second ignitable flare pellets;
 - a protrusion associated with one of said first ignitable flare pellet and said rod, and a depression or groove complementarily configured to accommodate said protrusion associated with another of said first ignitable flare pellet and said rod thereby preventing rotation of said first ignitable flare pellet relative to said rod.
2. (original) A flare pellet assembly, as claimed in Claim 1, wherein:
 - at least one of said first and second ignitable flare pellets comprises a frustum.
3. (original) A flare pellet assembly, as claimed in Claim 1, wherein:
 - at least one of said first and second ignitable flare pellets is substantially disk shaped.
4. (original) A flare pellet assembly, as claimed in Claim 1, wherein:
 - said first and second ignitable flare pellets are substantially identical in size and design.
5. (original) A flare pellet assembly, as claimed in Claim 1, wherein:
 - said first and second ignitable flare pellets are affixed to each other.
6. (original) A flare pellet assembly, as claimed in Claim 1, further comprising:
 - means for substantially immobilizing said first ignitable flare pellet relative to said second ignitable flare pellet.
7. (canceled) A flare pellet assembly, as claimed in Claim 1, further comprising:
 - a rod that extends through said first and second ignitable flare pellets.

8. (currently amended) A flare pellet assembly, as claimed in Claim 1 7, wherein:
at least one of said first and second ignitable flare pellets is affixed to said rod.
9. (currently amended) A flare pellet assembly, as claimed in Claim 1 7, further comprising:
means for preventing rotation of said first ignitable flare pellet relative to said rod.
10. (canceled) A flare pellet assembly, as claimed in Claim 9, wherein:
said means comprises a protrusion associated with one of said first ignitable flare pellet and said rod, and a depression or groove complementarily configured to accommodate said protrusion associated with another of said first ignitable flare pellet and said rod.
11. (currently amended) A flare pellet assembly, as claimed in Claim 1 7, wherein:
said rod comprises a stop at a first end of said rod and a threaded second end of said rod.
12. (original) A flare pellet assembly, as claimed in Claim 11, further comprising:
a threaded fastener engaged with said threaded second end of said rod, and wherein
said first and second ignitable flare pellets are disposed between said stop of said rod and said threaded fastener.
13. (currently amended) A pyrotechnic flare pellet assembly for providing at least one of visual and infrared energy output, said pyrotechnic flare pellet assembly comprising:
~~first and second~~ a plurality of pyrotechnic flare pellets made of at least one ignitable material, wherein said ~~first and second~~ plurality of pyrotechnic flare pellets are disposed along a longitudinal reference axis; and

a plurality of tapered grooves defined between each of said plurality of pyrotechnic
said first and second flare pellets, wherein each of said tapered groove tapers toward
said longitudinal reference axis.

14. (currently amended) A pyrotechnic flare pellet assembly, as claimed in Claim 13, wherein:
said plurality of tapered grooves comprises a plurality of interior angles ~~an interior~~
~~angle of~~ between about 5° and about 35°.

15. (currently amended) A flare pellet assembly, as claimed in Claim 13, wherein:
said ~~at least one~~ plurality of tapered grooves is annularly disposed about said
longitudinal reference axis.

16. (currently amended) A pyrotechnic flare pellet assembly, as claimed in Claim 13, further
comprising wherein:

means for substantially immobilizing each of said plurality of flare pellets relative to
each other. ~~said first flare pellet relative to said second flare pellet.~~

17. (currently amended) A pyrotechnic flare pellet assembly, as claimed in Claim 13, further
comprising:

a rod that extends through said plurality of first and second flare pellets.

18. (currently amended) A pyrotechnic flare pellet assembly, as claimed in Claim 17, further
comprising wherein:

at least one of said plurality of first and second flare pellets is affixed to said rod.

19. (currently amended) A pyrotechnic flare pellet assembly, as claimed in Claim 17, further
comprising:

means for preventing rotation of at least one of said flare pellets ~~said first flare pellet~~
relative to said rod.

20. (canceled) A method of assembling a flare pellet assembly, the method comprising the steps of:
- forming an ignitable material into a first flare pellet and a second flare pellet;
 - forming a pellet assembly comprising a stack of said first and second flare pellets;
 - and
 - disposing a casing about at least a portion of said pellet assembly.
21. (canceled) A method, as claimed in Claim 20, wherein:
- said forming step comprises at least one of pressing, extruding, casting, and forging said ignitable material.
22. (canceled) A method, as claimed in Claim 20, further comprising:
- substantially immobilizing said first flare pellet relative to said second flare pellet.
23. (canceled) A method, as claimed in Claim 20, further comprising:
- disposing a rod through said first and second flare pellets.
24. (canceled) A method, as claimed in Claim 23, further comprising:
- substantially immobilizing said first flare pellet relative to said rod.
25. (canceled) A method, as claimed in Claim 24, further comprising:
- substantially immobilizing said second flare pellet relative to said rod and said first flare pellet.
26. (canceled) A flare pellet assembly for providing at least one of a visual and an infrared energy output, said flare pellet assembly comprising:
- a non-granular, ignitable flare pellet, wherein said flare pellet exhibits a ratio of surface area measured in square inches to mass measured in grams of at least about 0.70.

27. (canceled) A flare pellet assembly, as claimed in Claim 26, wherein:
said ratio is at least about 0.75.
28. (canceled) A flare pellet assembly, as claimed in Claim 26, wherein:
said flare pellet exhibits a web thickness of no more than 0.2 inch.
29. (canceled) A flare pellet assembly, as claimed in Claim 26, wherein:
said flare pellet has been at least one of pressed, extruded, cast, and forged.
30. (canceled) A method of using a flare assembly, the method comprising the steps of:
providing an airborne flare pellet assembly, wherein said pellet assembly comprises
an ignitable material comprising between about 40% and about 70% magnesium, and
between about 20% and about 50% sodium nitrate; and
burning said pellet assembly at a rate sufficient to provide a visual light output
reaching at least about 5.0 million candela.
31. (canceled) A method, as claimed in Claim 30, wherein:
said burning step is accomplished at a rate sufficient to provide an infrared output
reaching at least about 14,000 w/ster in a short infrared band between about 1.8μ and
about 3.0μ .
32. (canceled) A method, as claimed in Claim 30, wherein:
said burning step is accomplished at a rate sufficient to provide an infrared output
reaching at least about 22,000 w/ster in a mid infrared band between about 3.0μ and
about 5.5μ .
33. (canceled) A method, as claimed in Claim 30, wherein:
said ignitable material comprises a plastic binder material.
34. (canceled) A method of using a flare assembly, the method comprising the steps of:

providing an airborne flare pellet assembly, wherein said pellet assembly comprises an ignitable material comprising magnesium, polytetrafluoroethylene, and a fluoroelastomer; and
burning said ignitable material at a rate sufficient to provide a first infrared output of at least about 90,000 w/ster in a short infrared band between about 1.8 μ and about 3.0 μ .

35. (canceled) A method, as claimed in Claim 34, wherein:

said burning step is accomplished at a rate sufficient to provide a visual light output of at least about 1.5 million candela.

36. (canceled) A method of using a flare assembly, the method comprising the steps of:

providing an airborne flare pellet assembly, wherein said pellet assembly comprises an ignitable material comprising magnesium, polytetrafluoroethylene, and a fluoroelastomer; and
burning said ignitable material at a rate sufficient to provide a first infrared output of at least about 130,000 w/ster in a mid infrared band between about 3.0 μ and about 5.5 μ .

37. (canceled) A method, as claimed in Claim 36, wherein:

said burning step is accomplished at a rate sufficient to provide a visual light output of at least about 1.5 million candela.

38. (canceled) A method of using a flare assembly, the method comprising the steps of:

providing an airborne flare pellet assembly; and

burning said airborne flare pellet assembly at a rate sufficient to provide a first infrared output in a short infrared band between about 1.8 μ and about 3.0 μ and a

second infrared output in a mid infrared band between about 3.0μ and about 5.5μ , wherein said burning step is accomplished at a rate sufficient for said first infrared output to reach at least about 90,000 w/ster and said second infrared output to reach at least about 130,000 w/ster.

39. (canceled) A method, as claimed in Claim 38, wherein:

said burning step is accomplished at a rate sufficient to provide a visual light output of at least about 1.0 million candela.

40. (canceled) A method of using a flare assembly, the method comprising the steps of:

providing an airborne flare pellet assembly; and

burning said airborne flare pellet assembly at a rate sufficient to provide a first infrared output of at least about 6,000 w/ster in a mid infrared band between about 3.0μ and about 5.5μ for a duration of at least about 2.0 seconds.

41. (canceled) A method, as claimed in Claim 40, wherein:

said burning step occurs at a rate sufficient for said first infrared output to reach a peak infrared output of at least about 7,000 w/ster.

42. (canceled) A method, as claimed in Claim 40, wherein:

said burning step is accomplished at a rate sufficient to provide a second infrared output of at least about 2,000 w/ster in a short infrared band between about 1.8μ and about 3.0μ during said at least about 2.0 seconds.

43. (new) A pyrotechnic flare pellet assembly for providing at least one of visual and energy output comprising:

a plurality of ignitable pyrotechnic flare pellets arranged in a stack;

a means for permanently joining said stack of said plurality of pellets whereby said stack remains joined upon ejection from a flare launcher;

each of said plurality of pellets having tapered edges whereby the center of each of said plurality of pellets is thicker than the edges of the pellet; and

a plurality of tapered grooves defined between said tapered edges of said pellets, said plurality of tapered grooves axially aligned with a vertical axis of said stack and disposed about the circumference of said stack.

44. (new) The pyrotechnic flare pellet assembly of Claim 43 further comprising:
said means is a rod that extends through said pellet assembly.
45. (new) The pyrotechnic flare pellet assembly of Claim 44 further comprising:
said means is an adhesive intermediate to said rod and said pellets.
46. (new) The pyrotechnic flare pellet assembly of Claim 44 further comprising:
said means is an adhesive intermediate to said pellets.
47. (new) The pyrotechnic flare pellet assembly of Claim 45 further comprising:
said means is a wrap disposed about said stack of pellets.
48. (new) The pyrotechnic flare pellet assembly of Claim 43 further comprising:
said plurality of pellets are disk shaped.
49. (new) The pyrotechnic flare pellet assembly of Claim 43 further comprising:
said plurality of pellets are shaped in the form of a frustum.
50. (new) The pyrotechnic flare pellet assembly of Claim 43 further comprising:
each of said plurality of tapered grooves having an interior angle of between about 5° and about 35°.
51. (new) The pyrotechnic flare pellet assembly of Claim 43 further comprising:

said plurality of pellets are substantially identical in size and design.

52. (new) The pyrotechnic flare pellet assembly of Claim 43 further comprising:

said plurality of pellets are bi-convex disks.